CLAIMS

1.   An information processing apparatus for transmitting inputted image data to a printing machine connected via an electronic network and making the printing machine execute printing, the information processing apparatus comprising:

a cost information register section for registering printing cost information for each of a plurality of printing machines connected via the electronic network;

an area coverage calculation section for calculating an area coverage by image forming material defined by an area of a print sheet covered with image forming material when printing the image data on the print sheet; and

a printing cost calculation section for calculating a printing cost for printing the image data, based on the area coverage by image forming material, printing cost information for each of the plurality of printing machines, and a print count of the image data.

2.   The information processing apparatus according to claim 1, further comprising:

a printing machine selection section which selects a printing machine of the minimum printing cost from among the printing cost of the plurality of printing machines calculated at the printing cost calculation section; and

an image transmission section which transmits the image data to the selected printing machine at the printing machine selection section via the electronic network.

3. The information processing apparatus according to claim 1, wherein the printing cost calculation section calculates the printing cost for printing the image data for each of the plurality of printing machines connected via the electronic network, based on the area coverage by image forming material defined by the area of the print sheet covered with image forming material when printing the image data on the print sheet, printing cost information, the print count of the image data, and a print density of the image data.

4. The information processing apparatus according to claim 1, wherein the area coverage calculation section comprises:

a sampling section sampling the image data at a predetermined sampling space;

a binary coding section converting sampled image data obtained at the sampling section to binarized image data consisting of black pixels and white pixels;

a black pixel counting section counting the number of black pixels of the binarized image data obtained at the binary coding section; and

a black pixel area calculation section calculating the area coverage by image forming material based on the number of black pixels counted at the black pixel counting section, the sampling space, and a resolution of the printing machine.

5. The information processing apparatus according to claim 1, wherein the information processing apparatus is an image input apparatus transmitting the inputted image data from an image reading section to the printing machines connected via the

electronic network.

6. The information processing apparatus according to claim 1, wherein the information processing apparatus is a personal computer transmitting the inputted image data from an application program to the printing machine connected via the electronic network.

7. The information processing apparatus according to claim 1, wherein the information processing apparatus is a server transmitting the inputted image data from an application program to the printing machine connected via the electronic network.

8. A computer-readable recording medium on which an information processing program transmitting inputted image data to a printing machine connected via an electronic network and making the printing machine execute printing is recorded, the information processing program causing an information processing apparatus to execute:

a cost information register process for registering printing cost information for each of a plurality of printing machines connected via the electronic network;

an area coverage calculation process for calculating an area coverage by image forming material defined by an area of a print sheet covered with image forming material when printing image data on the print sheet; and

a printing cost calculation process for calculating a printing cost for printing the image data, based on the area coverage by image forming material, printing cost information

43

for each of the plurality of printing machines, and a print count of the image data.

9.   The recording medium according to claim 8, wherein the printing cost calculation process calculates the printing cost with the parameters: "J" is the printing cost; "P_{master}" is the unit price of a stencil sheet; "$P_{print\ sheet}$" is the unit price of the print sheet; "P_{ink}" is the unit price of image forming material; "S" is the area coverage by image forming material; and "N" is a print count, and with the equation,

$$J = P_{master} + (P_{print\ sheet} + P_{ink} \times S) \times N$$

10.   The recording medium according to claim 8, wherein the information processing program causes the calculated printing cost for each of the plurality of printing machines to be displayed on a display device.

11.   The recording medium according to claim 8, wherein the information processing program further causes the information processing apparatus to execute:

a printing machine selection process selecting a printing machine of the minimum printing cost among the plurality of printing machines; and

an image transmission process transmitting the image data to the selected printing machine.

12.   The recording medium according to claim 8, wherein the printing cost of printing the image data is calculated based on the area coverage by image forming material defined by the area of the print sheet covered with image forming material on the print sheet, printing cost information of the image data,

the print count of the image data, and a print density of the image data.

13. The recording medium according to claim 8, wherein the area coverage calculation process comprises:

5   a sampling process sampling the image data at a predetermined sampling space;

a binary coding process converting sampled image data obtained by the sampling process to binarized image data consisting of black pixels and white pixels;

10   a black pixel counting process counting the number of black pixels of the binarized image data obtained by the binary coding process; and

a black pixel area calculation process calculating the area coverage by image forming material based on the number of black

15   pixels counted by the black pixel counting process, the sampling space, and a resolution of the printing machine.

14. The recording medium according to claim 13, wherein the area coverage calculation process calculates the area coverage by image forming material of the image data with the parameters,

20   "S" is the area coverage by image forming material; "A" is a print sheet area; "$N_{black-pixel}$" is the number of black pixels; "R" is a resolution equivalent to that of the printing machine; "R1" is the resolution of the printing machine; "M" is the sampling space; "L1" is a lateral length of the print sheet; and "L2"

25   is a lateral length of the print sheet, and with the equation

$$S = (A \times N_{black-pixel}) \; / \; (L1 \times L2 \times R^2)$$

$$= N_{black-pixel} \times (M/R1)^2$$

15. The recording medium according to claim 8,

wherein the information processing apparatus is an image input apparatus transmitting inputted image data from an image reading section to the printing machine connected via the

5 electronic network; and

wherein the information processing program is a firmware program of the image input apparatus.

16. The recording medium according to claim 8,

wherein the information processing apparatus is a personal

10 computer transmitting the inputted image data from an application program to the printing machine connected via the electronic network; and

wherein the information processing program is a virtual printer driver handing over the image data to a printer driver

15 program for a selected printing machine.

17. The recording medium according to claim 8,

wherein the information processing apparatus is a server transmitting the inputted image data from the application program to the printing machine connected via the electronic network;

20 and

wherein the information processing program is a virtual printer driver handing over the image data to the printer driver program for the selected printing machine.

18. A computer program product recorded in which an information

25 processing program transmitting inputted image data to a printing machine connected via an electronic network and making the printing machine execute printing is recorded on a

computer-readable recording medium, the information processing program causing an information processing apparatus to execute:

a cost information register process for registering printing cost information for each of a plurality of printing

5 machines connected via the electronic network;

an area coverage calculation process for calculating an area coverage by image forming material defined by an area of a print sheet covered with image forming material when printing the image data on the print sheet; and

10 a printing cost calculation process for calculating a printing cost for printing the image data, based on the area coverage by image forming material, printing cost information for each of the plurality of printing machines, and a print count of the image data.

15 19. The computer program product according to claim 18, wherein the information processing program further causes the information processing apparatus to execute:

a printing machine selection process selecting a printing machine of the minimum printing cost among the plurality of

20 printing machines; and

an image transmission process transmitting the image data to the selected printing machine.

20. The computer program product according to claim 18, wherein the printing cost of printing the image data is calculated based

25 on the area coverage by image forming material defined by the area of the print sheet covered with image forming material on the print sheet, printing cost information, the print count of

the image data, and a print density of the image data.

21.   The computer program product according to claim 18, wherein the area coverage calculation process comprises:

a sampling process sampling the image data at a predetermined sampling space;

a binary coding process converting sampled image data obtained at the sampling section to binarized image data consisting of black pixels and white pixels;

a black pixel counting process counting the number of black pixels of the binarized image data obtained at the binary coding process; and

a black pixel area calculation process calculating the area coverage by image forming material based on the number of black pixels counted at the black pixel counting process, the sampling space, and a resolution of the printing machine.

22.   An information processing method, comprising:

registering printing cost information for each of a plurality of printing machines connected via an electronic network;

calculating an area coverage by image forming material defined by an area of a print sheet covered with image forming material when printing image data on the print sheet; and

calculating a printing cost for printing the image data, based on the area coverage by image forming material, printing cost information for each of the plurality of printing machines, and a print count of the image data.

23.   The information processing method according to claim 22,

further comprising:

selecting a printing machine of the minimum printing cost among the plurality of printing machines; and

transmitting the image data to the selected printing machine.

24. The information processing method according to claim 22, wherein the printing cost of printing the image data is calculated based on the area coverage by image forming material defined by the area of the print sheet covered with image forming material on the print sheet, printing cost information of the image data, the print count of the image data, and a print density of the image data.

25. The information processing method according to claim 22, wherein the area coverage by image forming material calculation step further comprises:

sampling the image data at a predetermined sampling space;

converting sampled image data obtained at the sampling process to binarized image data consisting of black pixels and white pixels;

counting the number of black pixels of the binarized image data obtained by the binary coding process; and

calculating the area coverage by image forming material based on the number of black pixels counted by the black pixel counting process, the sampling space, and a resolution of the printing machine.